

6/21/04

In the Claims

Cancel 1-13

1. ~~(not elected)~~ <sup>Cancel</sup> A lead routing module for routing one or more signals between two devices in a suspension assembly, comprising: a nonconducting body; a first set of electrical contact regions positioned on said nonconducting body; a second set of electrical contact regions positioned on said nonconducting body; and a plurality of conducting leads coupled between said first and second sets of electrical contact regions for routing said signals between said first and said second sets of electrical contact regions.

2. ~~(not elected)~~ <sup>Cancel</sup> The lead routing module of claim 1, further comprising an upper conductive central region positioned on a top surface of said nonconducting body, said upper conductive central region having a plurality of conductive bumps extending above said top surface of said nonconducting body.

3. ~~(not elected)~~ <sup>Cancel</sup> The lead routing module of claim 2, further comprising a lower conductive region positioned on a bottom surface of said nonconducting body.

4. ~~(not elected)~~ <sup>Cancel</sup> The lead routing module of claim 2, wherein one or more of said plurality of bumps extends approximately 30 to 50 microns above said top surface of said nonconducting body.

5. ~~(not elected)~~ <sup>Cancel</sup> The lead routing module of claim 3, wherein said lower conductive region is a conductive plate that extends over substantially all of said lower surface of said nonconducting body.

6. ~~(not elected)~~ <sup>Cancel</sup> The lead routing module of claim 1, wherein at least one of said first and second sets of electrical contact regions represents a plurality of bonding pads.

7. ~~(not elected)~~ <sup>Cancel</sup> The lead routing module of claim 3, further comprising a grounding electrode coupled between said upper conductive central region and said lower

conductive region.

8. ~~(not elected)~~ <sup>cancel</sup> The lead routing module of claim 7, wherein said grounding electrode is a via hole.

9. ~~(not elected)~~ <sup>cancel</sup> The lead routing module of claim 7, wherein said grounding electrode is a side-wrapping electrode.

10. ~~(not elected)~~ <sup>cancel</sup> The lead routing module of claim 1, wherein said first set of electrical contact regions is formed on a first surface of said nonconducting body and said second set of electrical contact regions are formed on a second surface of said nonconducting body, wherein said first and second surfaces are adjacent surfaces.

11. ~~(not elected)~~ <sup>cancel</sup> The lead routing module of claim 1, wherein said first set of electrical contact regions are formed on a first surface of said nonconducting body and said second set of electrical contact regions are formed on a second surface of said nonconducting body, wherein said first and second surfaces are non-adjacent surfaces.

12. ~~(not elected)~~ <sup>cancel</sup> The lead routing module of claim 1, wherein at least one of said first and second sets of electrical contact regions is located on an upper surface of said nonconducting body.

13. ~~(not elected)~~ <sup>cancel</sup> The lead routing module of claim 1, wherein at least one of said first and second sets of electrical conductive regions is located on a side surface of said nonconducting body.

14. (Currently Amended) A [suspension assembly] disk drive system,  
comprising:

a microactuator having a connecting end;

a slider/head assembly [having a connecting end] positioned on the microactuator;

a suspension having a connecting end and electrically conducting paths; and  
an interconnect module [coupling the connecting ends of the suspension and the slider/head assembly to route one or more data signals between said electrically conducting paths and said slider/head assembly, such that the connecting end of the suspension is positioned in a first direction and the connecting end of the slider/head is positioned in a second direction] positioned between the suspension and the microactuator, the interconnect module coupling the connected end of the suspension and the connected end of the microactuator such that the connected end of the suspension is positioned in a first direction and the connecting end of the microactuator is positioned in a second direction.

15. (Currently Amended) The [suspension assembly] disk drive system of claim 14, wherein said suspension is an integrated lead suspension.

16. (Cancelled) The [suspension assembly] disk drive system of claim 14, wherein said suspension is configured for in-line mounting of said slider/head assembly.

17. (Currently Amended) The [suspension assembly] disk drive system of claim 16, wherein said slider/head assembly is [orthogonally] orthogonally mounted onto said suspension.

18. (Previously Amended) A suspension assembly comprising:  
a slider/head assembly;  
a suspension having a connecting end and electrically conducting paths;  
a microactuator having a connecting end; and  
an interconnect module coupling the connecting ends of the suspension and the microactuator to route one or more data signals between said electrically conducting paths and said microactuator, such that the connecting end of the suspension is positioned in a first direction and the connecting end of the microactuator is positioned in a second direction.

19. (Originally filed) The suspension assembly of claim 18, wherein said suspension is an integrated lead suspension.

20. (Originally filed) The suspension assembly of claim 18, wherein said suspension includes a first set of termination leads coupled to said slider/head assembly and a second set of termination leads coupled to said interconnect module.

21. (Currently Amended) An assembly, comprising:  
a first device;  
a second device; and  
an interconnect device coupled between said first and second devices to route one or more signals between said first and second devices,  
wherein said first device is a microactuator and said second device is a suspension.

22. (Cancelled) The assembly of claim 21, wherein said first device is a slider/head assembly and said second device is a suspension.

23. (Cancelled) The assembly of claim 21, wherein said first device is a microactuator and said second device is a suspension.

24. (Currently Amended) A storage device, comprising:  
a disk;  
a spindle motor positioned to support and rotate said disk;  
a suspension assembly including an interconnect module coupled between a slider/head assembly and a suspension, said suspension having electrically conducting paths, and said interconnect module routing one or more data signals between said electrically conducting paths and said slider/head assembly; and

[an actuator] a microactuator coupled to said suspension assembly and operable to position said suspension assembly above said disk to access said disk for reading and/or writing operations.

25. (Originally filed) The suspension assembly of claim 14, wherein said suspension is an integrated lead suspension.

26. (Cancelled) the storage device of claim 24, wherein said suspension is configured for in-line mounting of said slider/head assembly.

27. (Previously Amended) A test system for disks, comprising:  
a spindle motor for rotating a disk during a test operation; and  
a test platform including a suspension assembly coupled to an actuator, said actuator operable to position said suspension assembly above said disk to access said disk for said test operation, said suspension assembly including an interconnect module coupled between a slider/head assembly having a connecting end and a suspension, said suspension having a connecting end and electrically conducting paths, and said interconnect module coupling the connecting ends of the slider/head assembly and the suspension and routing one or more data signals between said electrically conducting paths and said slider/head assembly, such that the connecting end of the suspension is positioned in a first direction and the connecting end of the slider/head assembly is positioned in a second direction.

28. (Originally filed) The test system of claim 27, wherein said suspension is an integrated lead suspension.

29. (Originally filed) The test system of claim 27, wherein said suspension is configured for inline mounting of said slider/head assembly.

30. (Previously amended) The test system of claim 29, wherein said slider/head assembly is orthogonally mounted on said suspension.

31. (Previously amended) A storage device, comprising:  
a disk;  
a spindle motor positioned to support and rotate said disk;  
a suspension assembly including an interconnect module coupled between a suspension having a connecting end and electrically conducting paths and a microactuator having a connecting end, the interconnect module coupling the connecting ends of the suspension and the microactuator and routing data signals between said electrically conducting paths and said microactuator, such that the connecting end of the suspension is positioned in a first direction and the connecting end of the microactuator is positioned in a second direction; and  
an actuator coupled to said suspension assembly and operable to position said suspension assembly above said disk to access said disk for reading and/or writing operations.
32. (Originally filed) The storage device of claim 31, wherein said suspension is an integrated lead suspension.
33. (Previously amended) The storage device of claim 31, wherein said suspension is configured for in-line mounting of a slider/head assembly.
34. (Previously amended) A test system for disks, comprising:  
a spindle motor for rotating a disk during a test operation; and  
a test platform including a suspension assembly coupled to an actuator, said actuator operable to position said suspension assembly above said disk to access said disk for said test operation, said suspension assembly including an interconnect module coupled between a suspension having a connecting end and electrically conducting paths and a microactuator having a connecting end, the interconnect module coupling the connecting ends of the suspension and the microactuator and routing data signals between said electrically conducting paths and said microactuator, such that the

connecting end of the suspension is positioned in a first direction and the connecting end of the microactuator is positioned in a second direction.

35. (Originally filed) The test system of claim 34, wherein said suspension is an integrated lead suspension.

36. (Previously amended) The test system of claim 34, wherein said suspension is configured for in-line mounting of a slider/head assembly.

37. (Previously amended) The test system of claim 36, wherein said microactuator is orthogonally mounted onto said suspension.

38. (Previously added) The suspension assembly of claim 14, wherein said electrically conducting paths are attached to said suspension.

39. (Previously added) The suspension assembly of claim 18, wherein said electrically conducting paths are attached to said suspension.

40. (Previously added) The assembly of claim 21, wherein said electrically conducting paths are attached to said second device.

41. (Previously added) The test system of claim 27, wherein said electrically conducting paths are attached to said suspension.

42. (Previously added) The storage device of claim 31, wherein said electrically conducting paths are attached to said suspension.

43. (Previously added) The test system of claim 34, wherein said electrically conducting paths are attached to said suspension.